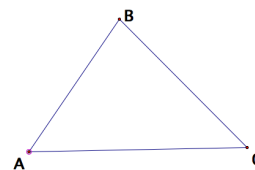
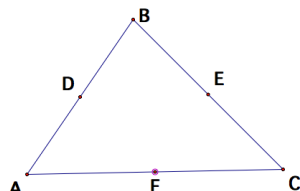


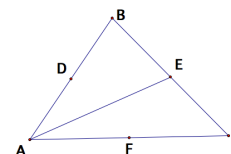
Q1. What is your name?

1. Open a sketchpad document and construct a scalene triangle.
2. Construct the midpoints of the sides. (*Click on the three side lengths and in the construct menu, choose midpoint.*)



3. Construct a segment from the vertex to the opposite midpoint.

You have just constructed a **median**. A median is a segment that connects the vertex of a triangle to the midpoint of the opposite side.



Q2. The median *kind of* looks like a perpendicular bisector. How is it the same?

Q3. How is the median different from a perpendicular bisector?

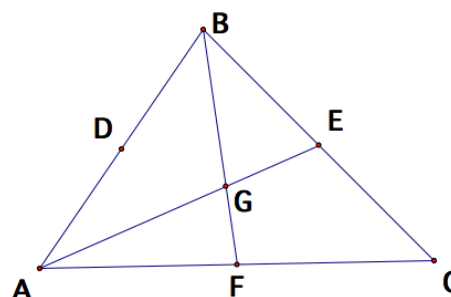
Q4. The median *kind of* looks like an angle bisector. How is it the same?

Q5. How is the median different from an angle bisector?

Q6. In certain types of triangles, the median, angle bisector and perpendicular are the same segment. Click and drag a vertex of the triangle until the median is also a perpendicular bisector and an angle bisector. What kind of triangle is this?

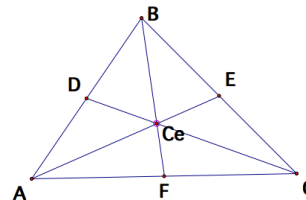
4. Construct a second median and label the point of intersection of the two medians.

5. Construct the third median.



Q7. Are the three medians concurrent?

The point of concurrency of three medians is called the centroid. It is the geometric center of the triangle. That is, it is balancing point of the triangle. Use your text tool and change the label of point G to “Ce” for centroid.



8. Is the centroid the midpoint of the median?

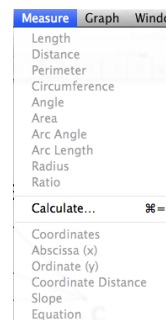
9. Measure the distance from B to CE, measure the distance from CE to F and measure the distance from B to F.

10. You should have noticed that the centroid is *not* the midpoint of the median. However, there is a relationship between the parts of the median.

11. In the measure menu, choose calculate.

12. Click on the actual measurement of BCe and divide it by the the measurement of CeF.

$$\boxed{BCe = \frac{BCe}{CeF}}$$



Q8. What do you notice about the ratios of these two measurements?

13. Click and drag the vertex of your triangle to make sure your conjecture holds.

Q9. What is the ratio of the distance from the vertex to the centroid and the entire length of the median? (If your algebra skills fail you, you can calculate this ratio.)